USDA, National Agricultural Statistics Service

Indiana Crop & Weather Report

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Released: October 19, 2009
Vol. 59, WC101909

CROP REPORT FOR WEEK ENDING OCTOBER 18

AGRICULTURAL SUMMARY

Harvest progress was hindered once again by rain showers and cool temperatures, according to the Indiana Field Office of USDA's National Agricultural Statistics Service. Moisture content in the corn and soybeans has been slow to come down requiring a great deal of the harvested crops to be dried. Many areas of the state encountered heavy frost over the weekend which will end the growing season for any crops that were not yet mature. Some intended winter wheat acreage may not be planted as farmers are being forced to wait until other crops are first harvested from these fields.

FIELD CROPS REPORT

There were 2.5 **days suitable for field work** during the week. **Corn condition** is rated 63 percent good to excellent compared with 56 percent last year at this time. Seventy-seven percent of the corn crop is **mature** compared to 92 percent last year and 96 percent for the 5-year average. Fifteen percent of the corn crop has been **harvested** compared to 39 percent last year and 49 percent for the 5-year average. **Moisture** content of harvested corn is averaging about 25 percent.

Soybean condition is rated 63 percent good to excellent compared with 49 percent last year at this time. Twenty-seven percent of the soybean acreage has been **harvested** compared with 71 percent last year and 72 percent for the 5-year average. **Moisture** content of harvested soybeans is averaging about 14.5 percent.

Twenty-two percent of the **Winter Wheat** acreage has been **planted** compared to 67 percent last year and 69 percent for the 5-year average. Four percent of the winter wheat has emerged compared with 28 percent last year and 27 percent for the 5-year average. **Tobacco harvest** is 95 percent complete compared with 96 percent last year and 97 percent for the 5-year average.

LIVESTOCK, PASTURE AND RANGE REPORT

Pasture condition is now rated 58 percent good to excellent compared with 25 percent last year at this time. Livestock remain in mostly good condition.

CROP PROGRESS TABLE

Crop	This Week	Last Week	Last Year	5-Year Avg.
	Percent			
Corn Mature	77	69	92	96
Corn Harvested	15	10	39	49
Soybeans Shedding Lvs	95	90	97	98
Soybeans Harvested	27	19	71	72
Winter Wheat Planted	22	13	67	69
Winter Wheat Emerged	4	1	28	27
Tobacco Harvested	95	91	96	97

CROP CONDITION TABLE

Crop	Very Poor	Poor	Fair	Good	Excel-lent
			Percent		
Corn	3	8	26	51	12
Soybean	2	8	27	51	12
Pasture	2	9	31	48	10

SOIL MOISTURE & DAYS SUITABLE FOR FIELDWORK TABLE

	This Week	Last Week	Last Year
	Percent		
Topsoil			
Very Short	0	0	11
Short	3	4	38
Adequate	56	51	50
Surplus	41	45	1
Subsoil			
Very Short	1	1	15
Short	9	10	36
Adequate	70	67	47
Surplus	20	22	2
Days Suitable	2.5	2.7	6.0

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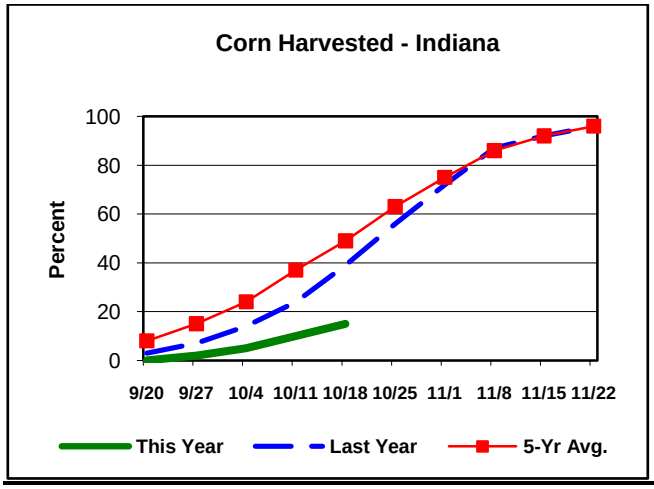
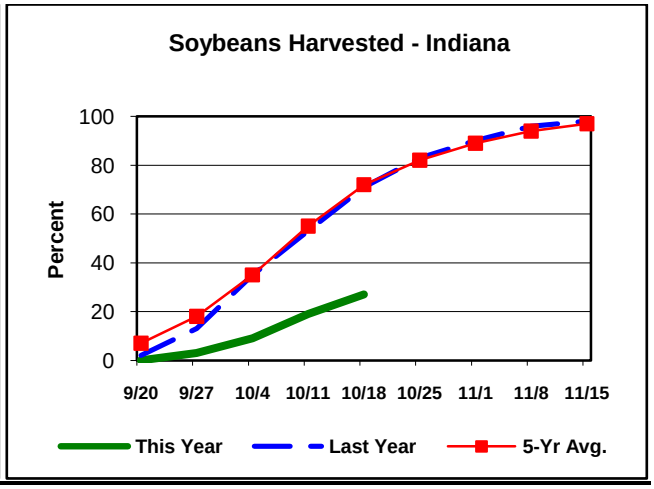
http://www.nass.usda.gov/Statistics_by_State/Indiana/





Other Agricultural Comments And News

Test Weight Issues in Corn

Published Oct 2009
URL: http://www.kingcorn.org/news/timeless/TestWeight.html

Among the top 10 most discussed (and cussed) topics at hometown cafes during harvest season is the test weight of the grain being reported from corn fields in the neighborhood. Test weight is measured in the U.S. in terms of pounds of grain per volumetric bushel. In practice, test weight measurements are based on the weight of grain that fills a quart container (32 qts to a bushel) that meets the specifications of the USDA-FGIS (GIPSA) for official inspection (Fig. 1 at the web address listed at the beginning of the this article). Certain electronic moisture meters, like the Dickey-John GAC, estimate test weight based on a smaller-volume cup. These test weight estimates are reasonably accurate but are not accepted for official grain trading purposes.

The official minimum allowable test weight in the U.S. for No. 1 yellow corn is 56 lbs/bu and for No. 2 yellow corn is 54 lbs/bu (USDA-GIPSA, 1996). Corn grain in the U.S. is marketed on the basis of a 56-lb "bushel" regardless of test weight. Even though grain moisture is not part of the U.S. standards for corn, grain buyers pay on the basis of "dry" bushels (15 to 15.5% grain moisture content) or discount the purchase price to account for the drying expenses they will incur with corn grain wetter than 15 or 15.5% moisture.

Growers worry about low test weight because local grain buyers often discount their offered price to farmers for low test weight grain. In addition, growers are naturally disappointed when they deliver a 1000-bu semi-load of grain with an average 52-lb test weight because they only get paid for 929 56-lb "market" bushels (52,000 lbs ÷ 56 lbs/bu).

On the other hand, high test weight grain makes growers feel good when they deliver a 1000 bushel semi-load of grain with an average 60 lb test weight because they will get paid for 1071 56-lb "market" bushels (60,000 lbs ÷ 56 lbs/bu). These emotions encourage a belief that high test weight grain is associated with high grain yields (lbs. of dry matter per acre) and vice versa. However, there is little evidence in the research literature that corn test weight is strongly correlated with grain yield.

Hybrid variability exists for grain test weight, but also does not necessarily correspond to differences in genetic yield potential. Test weight for a given hybrid can vary from field to field or year to year, but does not necessarily correspond to the yield level of an environment. The graph in Fig. 2 illustrates the absence of a strong correlation between relative grain yield and test weight for two hybrids grown in our nitrogen rate trials over multiple site-years in Indiana.

Conventional dogma suggests that low test weight corn grain results in lower processor efficiency and quality of processed end-use products like corn starch, though the research literature does not consistently support this belief. Similarly, low test corn grain is often thought to be inferior for animal feed quality, though again the research literature is not in agreement on this. Whether or not low test weight grain is inferior to higher test weight grain may depend on the cause of the low test weight in the first place.

Common Causes of Low Test Weight Corn

So far this 2009 harvest season in Indiana, there are more reports of low test weight corn grain than good or above average test weights. There are primarily six factors that account for most of the low test weight grain in 2009 and four share a common overarching effect.

First and foremost, growers should understand that test weight and grain moisture are inversely related. The higher the grain moisture, the lower the test weight. As grain dries in the field or in the dryer, test weight naturally increases as long as kernel integrity remains intact. Test weight increases as grain dries partly because kernel volume tends to shrink with drying and so more kernels pack into a volume bushel and partly because drier grain is slicker which tends to encourage kernels to pack more tightly in a volume bushel.

Therefore in a year like 2009 with many of the initial harvest reports of grain moisture ranging from 25 to 30% instead of the usual starting moisture levels of about 20 to 23%, it should not be surprising that test weights are lower than expected. Hellevang (1995) offered a simple formula for estimating the increase in test weight with grain drying. In its simplest form, the equation is (A/B) x C; where A = 100 - dry moisture content, B = 100 - wet moisture content, and C = test weight at wet moisture content. The author does not say, but I suspect this simple formula is most applicable within a "normal" range of harvest moistures; up to moistures in the mid- to high 20's.

Example: Dry moisture = 15%, Wet moisture = 25%, Test weight at 25% = 52 lbs/bu.

Test weight at 15% moisture = ((100 - 15) / (100 - 25)) x 52 = (85/75) x 52 = 58.9 lbs/bu

An older reference (Hall & Hill, 1974) offers an alternative suggestion for adjusting test weight for harvest moisture that also accounts for the level of kernel damage in the harvested grain (Table 1 at web address listed at beginning of this article). The table values are based on the premise that kernel damage itself lowers test weight to begin with and that further drying of damaged grain results in less of an increase in test weight that what occurs in undamaged grain. Compared to

(Continued on Page 4)

Weather Information Table

Week Ending Sunday October 18, 2009

Station	Past Week Weather Summary Data							Accumulation				
								April 1, 2009 thru October 18, 2009				
	Air Temperature				Precip.		Avg 4in Soil	Precipitation			GDD Base 50°F	
	Hi	Lo	Avg	DFN	Total	Days	Temp	Total	DFN	Days	Total	DFN
Northwest (1)												
Chalmers_5W	53	31	42	-13	0.61	5		24.56	+0.98	83	2612	-556
Francesville	51	31	41	-12	0.60	5		24.38	+0.41	75	2558	-339
Valparaiso_AP_I	49	33	42	-13	0.22	4		19.66	-6.29	77	2717	-180
Wanatah	51	32	41	-12	0.38	5	47	24.30	-0.61	84	2436	-317
Winamac	51	30	41	-12	0.44	5	48	20.65	-3.32	73	2640	-257
North Central(2)												
Plymouth	50	32	41	-13	0.18	2		23.50	-1.24	95	2565	-485
South_Bend	51	32	41	-12	0.17	2		26.09	+2.01	74	2713	-145
Young_America	52	31	41	-13	0.53	2		24.78	+1.48	59	2659	-337
Northeast (3)												
Fort_Wayne	53	29	43	-11	0.31	4		24.55	+3.21	78	2849	-154
Kendallville	53	33	44	-10	0.06	3		21.18	-1.20	91	2887	+63
West Central(4)												
Greencastle	60	29	43	-13	0.43	4		34.63	+7.76	86	2665	-736
Perrysville	60	27	44	-11	0.37	5	46	34.28	+9.23	82	2973	-183
Spencer_Ag	64	29	44	-11	0.81	3		38.14	+11.29	82	2986	-192
Terre_Haute_AFB	62	27	45	-11	0.46	2		25.57	+0.27	69	3238	-136
W_Lafayette_6NW	54	28	43	-12	0.43	6	49	28.60	+4.96	78	2813	-177
Central (5)												
Eagle_Creek_AP	60	33	45	-11	0.36	3		31.53	+7.89	78	3261	-80
Greenfield	62	28	43	-12	0.39	5		37.64	+11.76	82	2892	-320
Indianapolis_AP	61	31	45	-10	0.32	3		35.10	+11.46	76	3380	+39
Indianapolis_SE	60	27	42	-13	0.67	5		38.33	+14.11	81	2888	-448
Tipton_Ag	57	29	42	-11	0.55	4	54	29.37	+5.08	83	2708	-185
East Central(6)												
Farmland	60	23	42	-11	0.48	4	48	22.68	-0.67	77	2756	-65
New_Castle	63	24	43	-10	0.50	3		29.31	+4.50	78	2648	-245
Southwest (7)												
Evansville	68	32	49	-10	1.41	3		34.29	+10.29	75	3860	-24
Freelandville	64	34	46	-10	1.13	3		41.55	+16.60	76	3343	-144
Shoals_8S	66	28	45	-11	1.03	4		40.51	+13.56	74	3040	-341
Stendal	69	33	48	-9	0.56	3		43.82	+17.15	75	3755	+103
Vincennes_5NE	67	30	47	-10	1.26	4	54	40.90	+15.95	81	3481	-6
South Central(8)												
Leavenworth	67	31	47	-9	1.18	5		44.73	+17.63	105	3380	+23
Oolitic	64	30	45	-10	1.14	5	48	36.81	+10.90	88	3089	-131
Tell_City	68	35	49	-9	1.22	3		35.21	+7.94	71	3668	-95
Southeast (9)												
Brookville	64	28	46	-8	0.44	3		30.94	+5.97	76	3133	+80
Greensburg	65	28	45	-9	0.47	4		37.98	+12.80	82	3269	+140
Seymour	64	28	44	-10	0.62	4		40.35	+15.62	72	3015	-197

DFN = Departure From Normal.
GDD = Growing Degree Days.
Precipitation (Rainfall or melted snow/ice) in inches.
Precipitation Days = Days with precip of .01 inch or more.
Air Temperatures in Degrees Fahrenheit.

For more weather information, visit www.awis.com
or call 1-888-798-9955.

the results from using Hellevang's simple formula, adjustments to test weight using these tabular values tend to result in smaller adjustments to test weight for high moisture grain at harvest, but larger adjustments for drier grain at harvest.

Secondly, thirdly, and fourthly; drought stress (primarily northern Indiana), late-season foliar leaf diseases (primarily gray leaf spot and northern corn leaf blight), and below normal temperatures throughout September all resulted in a significant deterioration of the crop's photosynthetic machinery beginning in early to mid-September that "pulled the rug out from beneath" the successful completion of the grain filling period in some fields; resulting in less than optimum starch deposition in the kernels. Fifthly, early October frost/freeze damage to late-developing, immature fields resulted in leaf or whole plant death that effectively put an end to the grain-filling process with the same negative effect on test weight.

Finally, there were widespread reports of ear rots (diplodia, gibberella, etc.) throughout many areas of Indiana in 2009. Kernel damage by these fungal pathogens results in light-weight, chaffy grain that also results in low test weight diseased grain, broken kernels, and excessive levels of foreign material. This cause of low test weight grain obviously results in inferior (if not toxic) animal feed quality grain, unacceptable end-use processing consequences (ethanol yield, DDGS quality, starch yield and quality, etc.), and difficulties in storing the damaged grain without further deterioration.

Related References

Bradley, Carl. 2009. Diplodia Ear Rot Causing Problems in Corn Across the State. The Bulletin, Univ of Illinois Extension. [online]. http://ipm.illinois.edu/bulletin/article.php?id=1233. [URL accessed Oct 2009].

Hall, Glenn and Lowell Hill. 1974. Test Weight Adjustment Based on Moisture Content and Mechanical Damage of Corn Kernels. Trans. ASAE 17:578-579.

Hellevang, Kenneth. 1995. Grain Moisture Content Effects and Management. North Dakota State Extension Publication AE-905. [online]. http://www.ag.ndsu.nodak.edu/abeng/pdffiles/ae905.pdf. [URL accessed Oct 2009].

Hicks, D.R. and H.A. Cloud. 1991. Calculating Grain Weight Shrinkage in Corn Due to Mechanical Drying. Purdue Extension Publication NCH-61 [online]. http://www.ces.purdue .edu/extmedia/nch/nch-61.html [URL accessed Oct 2009].

Hill, Lowell D. 1990. Grain Grades and Standards: Historical Issues Shaping the Future. Univ. of Illinois Press, Champaign, IL.

Hurburgh, Charles and Roger Elmore. 2008. Corn Quality Issues in 2008 - Moisture and Test Weight. Integrated Crop Management News, Iowa State Univ. Extension. [online]. http://www.extension.iastate.edu/CropNews/2008/1023 hurburghrobertsonelmore1.htm. [URL accessed Oct 2009].

Hurburgh, Charles and Roger Elmore. 2008. Corn Quality Issues in 2008 – Storage Management. Integrated Crop Management News, Iowa State Univ. Extension. [online]. http://www.extension.iastate.edu/CropNews/2008/1023hurburg hrobertson.htm. [URL accessed Oct 2009].

Nafziger, Emerson. 2003. Test Weight and Yield: A Connection? The Bulletin, Univ of Illinois Extension. [online]. http://ipm.illinois.edu/bulletin/pastpest/articles/200323h.html. {URL accessed Oct 2009].

USDA-GIPSA. United States Standards for Corn. 1996. USDA Grain Inspection, Packers and Stockyards Administration (GIPSA). [online] http://archive.gipsa.usda.gov/reference-library/standards/810corn.pdf. [URL accessed Oct 2009].

Wise, Kiersten and Charles Woloshuk. 2009. Dealing With Diplodia Ear Rot. Pest & Crop Newsletter, Purdue Extension. [online]. http://extension.entm.purdue.edu/pestcrop/2009/issue 24/index.html. [URL accessed Oct 2009].

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The INDIANA CROP & WEATHER REPORT (USPS 675-770), (ISSN 0443-817X) is issued weekly April through November by the USDA, NASS Indiana Field Office, 1435 Win Hentschel Blvd, Suite 110, West Lafayette, IN 47906-4547. For information on subscribing, send request to above address. POSTMASTER: Send address change to the USDA, NASS, Indiana Field Office, 1435 Win Hentschel Blvd, Suite 110, West Lafayette, IN 47906-4547.